IN THE CLAIMS:

Please cancel claim 2. **Please also amend** claims 1, 3, and 4 and add new claims 5 and 6 as shown in the complete list of claims that is presented below.

1. (currently amended) A fast gamma correction method for an image reading apparatus with a color correction function and a plurality of normalized output pixel data after correction Y quantified by n-bits into 2^n intervals, comprising the following steps:

a. ~~provided that the image reading apparatus has a plurality of normalized output pixel data after correction Y quantified by n-bit into 2^n intervals,~~ combining the 2^n intervals ~~are combined~~ to M merged ~~interval, wherein~~ intervals, comprising the following steps:

a0: set k=0;

a1: set h=k;

a2: set k=k+1;

a3: if $k=2^n$, stop;

a4: if s is within (h,k), and all X_T, $T=0..2^m-1$, in $(G^{-1}(T_s), G^{-1}(T_{s+1}))$, are equal to all X_T, $T=0..2^m-1$ in $(F^{-1}_{(h,k)}(T_s), F^{-1}_{(h,k)}(T_{s+1}))$, back to step a2;

a5: merging (T_h, T_{h+1})~(T_{k-1}, T_k) into (T_h, T_k), and recoding $F_{(h,k)}(.)$; and

a6: back to step a1;

wherein

m: resolution of normalized input data,

n: resolution of normalized output data,

Y=G(X): realistic color correction function,

$F_{(h,k)}$ (.) fitting function in interval (T_h, T_k), and

$M \leq 2^n$~~, the color correction function for the image reading apparatus is represented by a simple fitting function in each merged interval~~;

b. reading a normalized input pixel data X and locating which merged interval the input pixel data X ~~lie in~~ lies in, wherein threshold values of the X coordinate can be obtained by inversely mapping threshold values of the Y coordinate; and

c. finding the normalized output pixel data after correction Y by ~~approximated~~ a fitting function in the merged interval and using the normalized input pixel data X for substitution.

Claim 2 (cancelled).

3. (currently amended) The fast gamma correction method for an image reading apparatus as in claim 1, wherein in step a, the ~~simple~~ fitting function is a non-transcendental function ~~such as polynomial function or exponential function~~.

4. (currently amended) The fast gamma correction method for an image reading apparatus as in claim 1, wherein image reading apparatus ~~can be~~ is selected from the group consisting of a scanner, a digital still camera, ~~or~~ and a video camera.

5. (new) The fast gamma correction method for an image reading apparatus as in claim 3, wherein the non-transcendental function is a polynomial function.

6. (new) The fast gamma correction method for an image reading apparatus as in claim 3, wherein the non-transcendental function is an exponential function.